stored in the bootstrap memory 16 into the main memory 14 automatically. The program commands are stored in the main memory 14 starting from the initial address zero and continuing in rising address values. The first stage of restarting the data processing installation 10 forms a bootstrap transfer operation in which a bootstrap program stored in the bootstrap memory 16 is transferred to the main memory 14.

In a process step 104, the start controller 42 deactivates the reset input of the processor 12 in order to prompt the processor 12 to change from a reset state (Reset) to a normal mode of operation. In process step 104, the processor 12 obtains read access to the main memory 14 via the bus system 22, the internal bus system 40 and the bus system 24. When the bootstrap program is executed, dynamic data can be stored in the main memory 14. When the bootstrap program's commands are executed, the bootstrap program's program commands are first copied from the initial area of the main memory 14 to the final area of the main memory 14. The processor then uses a jump command to execute commands starting from an address in the final area. When these commands are executed, the operating system is transferred to the main memory 14 via the serial interface 28, the internal bus system 40 and the bus system 24.

The operating system 18 is stored in the main memory 14 starting from the initial address in the main memory; see process step 106. Process step 106 forms a second stage of the start operation. The second stage is also referred to as the reload transfer operation. In a process step 108 following process step 106, the start controller 42 sets the processor 12 to the reset state and prompts it to start executing commands at the beginning of the main memory 14 again. This invokes the operating system of the data processing installation 10; e.g., the WINDOWS operating system. The process for restarting the data processing installation is complete in a process step 110.

In another exemplary embodiment, the operating system is stored in the reload memory 18 in compressed form. The reload memory 18 also stores a decompression program. Process steps 100 to 104 are thus executed as in the first

exemplary embodiment. In process step 106, however, the decompression program is copied from the reload memory 18 into the main memory 14; specifically, starting at the beginning of the main memory 14. Next, in a process step 107 following process step 106, the processor 12 is reset by the start controller 42.

The processor 12 then starts again to execute commands from the initial address in the main memory 14. Upon execution of these program commands, the decompression program is copied from the initial area of the main memory 14 into the final area thereof. On the basis of a jump command after this copying operation, the processor 12 continues to execute commands in the final area of the main memory 14. When the decompression program's commands are executed, in a process step 107, the compressed operating system is read from the reload memory 18, is decompressed and is stored in uncompressed form in the main memory 14 starting at the initial address thereof. Copying the operating system is a third stage of the restart operation.

Process step 107 is followed by process step 108 in the manner explained above. In process step 110, the process for restarting the data processing installation 10 is then terminated.

Figure 3 shows memory areas in the reload memory 18, as are used in a third exemplary embodiment. A decompression area 150 stores the decompression program in uncompressed form, starting from an address ADRA. In an operating system area 152 following the decompression area 150, the operating system is stored in compressed form starting at an address ADRB. The decompression area 150 and the operating system area 152 form a selection area 154. Specifying the address ADRA in a register of the reload memory 18 selects the selection area 154 as the active memory area. Program commands can be read from the currently active memory area. By contrast, a selection area 156 cannot be read without changing the content of the register. The selection area 156 contains a decompression area 158 for storing a later version of the decompression program. The decompression area 158 starts at an address ADRC. The decompression area 158 is followed by an operating system area 160 at an address ADRD. The

operating system area 160 is likewise in the selection area 156 and is used for holding a new version of the operating system in compressed form.

If a new version of the operating system is intended to be used on the data processing installation 10, the selection area 154 first of all remains active. Via remote data transfer or via local data transfer, e.g. from a drive in the data processing installation 10, the same decompression program as in the decompression area 150 is stored in the decompression area 158. If a later version of the copying program is available, then the later version is stored in the decompression area 158. Next, the later version of the operating system is stored in compressed form in the operating system area 160. After this storage operation, the address ADRC is entered in the register of the reload memory 18 as the start address of the active area. Hence, the selection area 156 is now active. The selection area 154 is no longer active; i.e., program commands can no longer be read from it. Next, a reset pulse is produced on the reset line 46. The restart process explained above with reference to Figure 2 is performed, with the selection area 156 being accessed. In this context, process step 107 is also performed. If no errors arise when the restart operation is performed, the program commands stored in the selection area 154 can be erased.

If, by contrast, an error arises when the process steps are performed for the restart operation, the register content of the reload memory 18 is altered. The address ADRA is entered again; i.e., there is a switch to the selection area 156 again. Next, a reset pulse is supplied to the reset line 46, and the data processing installation is restarted in the manner explained above. On another data processing installation, the error is sought in the program code of the operating system's compression program and is removed. The corrected program is then transferred to the decompression area 156 or to the operating system area 160. After that, there is a switch to the selection area 156 and a restart operation is performed, in the manner explained above with reference to Figure 3.

Although the present invention has been described with reference to specific embodiments, those of skill in the art will recognize that changes may be made